



**THE LIVESTOCK  
CONSERVANCY™**

**N E W S**

AUTUMN, 2019

VOLUME 36, ISSUE 4

*Conserving rare breeds since 1977*

## Domesticated Poultry Experts Meet to Prevent Decline of Rare Waterfowl and Turkey Breeds

In recent years, some domesticated large waterfowl and turkeys have experienced declines in populations and several key long-time breeders have been lost. These issues pose a threat to genetic diversity and the future of many historic breeds if actions are not taken. To explore ways to proactively address this problem, Heritage and standard-bred poultry and livestock experts from throughout the United States and Canada convened for a historic summit on the topic. The event, co-hosted by the Heritage Poultry Conservancy, The Livestock Conservancy and the American Poultry Association took place at P. Allen Smith's Moss Mountain Farm near Little Rock, Arkansas.

Several issues impacting domesticated poultry and waterfowl were identified at the summit and strategies to address them were developed. One of the leading issues identified by the group is insufficient access to educational resources. People breeding and raising the birds need access to good information about the skills and techniques required to successfully manage their flocks and market their products. Additionally, the general public and potential customers need to learn about the variety of products these birds offer. In order to address these needs, the American Poultry Association, The Livestock Conservancy, the Heritage Poultry Conservancy, Bird Shippers of America, the Good Shepherd Institute and commercial hatcheries, including Metzger Farms and Murray McMurray, will work collaboratively to develop and share training resources for breeders and consumers.

Another issue for large waterfowl and turkeys is to develop response plans for exotic diseases that are tailored to the



***Poultry leaders from the U.S. and Canada gathered at P. Allen Smith's Moss Mountain Farm near Little Rock, AR for the summit.***

needs of small flocks. In 2014, a severe outbreak of avian influenza, or "bird flu," resulted in the loss of nearly 50 million domesticated birds across the United States. Large areas of California and Arizona have been quarantined since 2018 in response to an outbreak of virulent Newcastle disease. Small farms and flocks are not immune to threats like these, and endangered breeds of poultry within an outbreak zone would be especially impacted in terms of lost genetics.

Recruitment of new breeders must take place to protect and expand waterfowl and turkey populations. America's farmers and poultry breeders are aging, and future generations of birds need future generations of breeders. Youth involvement through organizations like 4-H and FFA will be key to this growth. Efforts toward engaging more breeders in waterfowl and turkeys

include events like the recent "Chicken Chat" at Moss Mountain Farm and the American Poultry Association sanctioned turkey show at the Ohio National Show in November will be the largest standard bred turkey show in recent times. Additionally, The Livestock Conservancy has made microgrants available for those looking at expanding their capacity to raise Heritage livestock and poultry.

At the conclusion of the meeting, the group toured the Heritage Poultry Conservancy's collection of over 50 breeds of rare poultry at the farm. Summit participants agreed that in order to strengthen many of our large waterfowl breeds and turkey varieties, everyone involved will need to work together. These birds have a long history of use in American Agriculture and this summit is a first step in protecting their roles for the future. ❖

# Annual Members Meeting December 10, 2019

7:00 pm Eastern Standard Time

Mark your calendar for this year's Members Meeting and join us by telephone and/or internet. Slides will be shared online, and you can listen in by phone or through your computer or mobile device's speakers. If you wish to participate in the Q&A part of the meeting and you are using a desktop computer, you will need to have a working microphone enabled. You may choose to view slides online and use your phone for audio if you wish. Note: Phone carriers may apply standard charges for call time and/or data usage.

## 1. Phone into the conference:

Dial-in Number (United States): 515-606-5358

Access Code: 202919#

International Dial-in Numbers: <https://fccdl.in/i/livestockconservancy>

## 2. Join the online meeting:

Online Meeting Link: <https://join.freeconferencecall.com/livestockconservancy>

Online Meeting ID: livestockconservancy

Note: Online meetings work on PCs, Macs®, Chromebooks™, iOS and Android™ phones and tablets. You may download the desktop or mobile app at [www.freeconferencecall.com/downloads](http://www.freeconferencecall.com/downloads) or view slides using the Web Viewer, however only screen sharing (no audio) is supported through Web Viewer when using Internet Explorer or Safari.

For 24/7 customer service call 844-844-1322.



## Are You Getting Our eNews?

In addition to our quarterly print newsletter, all members of The Livestock Conservancy are entitled to our monthly email newsletter, *The Livestock Conservancy eNews*. Make sure we have your correct email on file in order to receive this additional publication.

If you think you should be receiving the eNews but haven't seen it, be sure to check your junk mail folder and add the Conservancy to your email whitelist. Members can update their email at any time through the Account Login link at [LivestockConservancy.org](http://LivestockConservancy.org).

If you still have questions, contact Ryan Walker at [rwalker@LivestockConservancy.org](mailto:rwalker@LivestockConservancy.org). Recipients may opt out at any time.

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*The Livestock Conservancy News* (ISSN 1064-1599) is published quarterly by The Livestock Conservancy. © The Livestock Conservancy 2019.



The Livestock Conservancy is a nonprofit tax-exempt corporation established to conserve and promote endangered breeds of livestock and poultry. The Conservancy

is a membership organization that engages in research, education, and communication to promote these purposes.

Basic annual membership is \$45 and includes the quarterly *Livestock Conservancy News* and the annual *Breeders Directory*. We also accept unsolicited donations. All contributions are tax-deductible to the extent provided by law. Please send changes of address to the Conservancy.

The Conservancy welcomes articles, photographs, letters, and classified advertising for possible publication. Publication of articles or

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## FROM THE SCIENCE — DESK —

# Foundation, Drift, and Selection: Why Do Breeds Differ?

By D. P. Sponenberg

Breeds are different from one another, and understanding how those differences arise can help in wise management of breeds. Most people assume that breed differences were always there from the beginning, right when the breeds emerged intact from Noah's Ark. It is generally more accurate that these differences arose relatively recently. Exceptions to this general observation DO occur, and the importance of these is even better appreciated by understanding how the more usual recent differences have arisen.

One visual way to think about the general issues involved in breed formation is to imagine a huge sack of dry beans of various sorts: pintos, black, kidney, butterbean, Jacob's cattle, navy, and so on. If a smaller lot of beans is wanted, how that huge sack contributes to the small one can make a big difference in the variations present in that little sack. This relates back to foundation, drift, and selection.

One way that breeds differ is by virtue

of foundation events. "Foundation" refers back to which specific animals started a population. Foundation events are almost invariably a small number of animals, especially in cases where the animals had to be transported centuries ago. The key here is that only those variants available at the point of departure have any chance of being included in the mix, and even some of those might be left out either by random chance or by deliberate selection. A small sample that is drawn at random from the large sack of beans is likely to have at least some differences in bean frequency from the larger sack. Someone deliberately going through the sack and pulling out all the kidney beans (though this would be selection as much as foundation) has the result of an even more skewed sample.

An example of random chance includes several populations of island goats such as San Clemente Island and Arapawa. Island populations usually started with only a handful of goats left by early explorers. The result is that it was impossible to include a wide range of variants simply due the fact that a small group cannot have that. The populations that descend from these small foundation events therefore tend to have relatively less variation than the larger populations from which that original sample was drawn. This is so much the case that for many island populations it is difficult to tell exactly what was that original source all those centuries ago.

Genetic drift is another way that variation can change. Genetic drift refers to the fact that genetic variation passes from generation to generation by a random process. Just like it is possible to flip a coin ten times and come up with heads ten times, it is possible that some variants can be lost by chance. In the case of genetic drift, the variants that are more rare in a population are the most likely to be lost by this random process. If the bean sack is sampled, and that smaller sample is sampled, and the subsequent sample is then sampled, mimicking multiple generations, then the random draw can have profound consequences. In the first draw, kidney beans might be under-represented. If that happens the next round, then kidney beans are at risk from being completely lost from the mix.

When genetic drift is added to small foundation sizes, as in island goats, the end result is that an already small level of variation becomes even smaller. This in-

teraction of foundation and genetic drift is the reason that many long-isolated island populations are so genetically uniform, and as a consequence come out in genetic analyses to be so unlike other breeds.

A third way to change gene frequencies is selection. One example of a more deliberate action based on selection comes from our hair sheep breeds. In Africa, the point of origin, most are horned. In the Caribbean, most are polled. A ship's captain four centuries ago most likely selected those few polled animals that were available at the African port, thinking (correctly!) that they would be easier to manage on a cross-Atlantic voyage. The influence of this sort of skewed sampling is felt even centuries later. Certain variants are favored, leading to their being over-represented in the sample than they are in the population from which they originate. Selection has taken something that was rare, and turned it into something that is common to the point of being considered a specific hallmark of the breed.

Not all selection is imposed by people. Nature also imposes selection, and the effects of this on gene frequency can be dramatic. Most species that are usually colored do indeed produce the occasional spotted or white animal. These are usually easy targets for predators, and tend to be rapidly eliminated. That elimination acts to keep the genetic mechanisms behind such wild colors at a very low level.

Basically, selection is going through the bean sack and either selectively kicking out some types of beans, or selectively retaining them. Either strategy works effectively to change that final sack of beans.

Each of the three (foundation, genetic drift, and selection) can have profound effects on the final genetic structure of a population. For many breeds, these actually all act together, and can have even more far-reaching effects than they can when they each work in isolation. Today's breeds, especially those that have minimal variation, are the result of these three working together to give that final breed package that is now so distinctive. ❖

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### 1. Choose Your Size

With 4 options to choose from, pick the ad size that works best for your farm, business, or organization.

1/8 Page (3.5"x2" or business card-size) = \$75

1/4 Page (3.5"x4.75") = \$125

1/2 Page (7.25"x4.75") = \$175

Full Page (7.25"x9.5") = \$250

### 2. Reserve Your Spot by December 31, 2019

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Send high resolution (300dpi+ preferable) ads to Ryan to be included in the 2020 directory no later than **December 31, 2019**. Ads may be sent in color, but will be printed black and white.

**Questions?** Contact us to find out more about advertising at [rwalker@LivestockConservancy.org](mailto:rwalker@LivestockConservancy.org) or 919-542-5704.

## Welcome to Our Newest Life Members!

The Livestock Conservancy would like to give a special thanks to the following individuals who recently chose to support the Conservancy and its conservation programs by becoming life members. For more information on becoming a life member, please contact Karena Elliott at (806) 570-0874 or [kelliott@LivestockConservancy.org](mailto:kelliott@LivestockConservancy.org).

**Julie Atwood**  
Glen Ellen, CA

**Anonymous**  
Portland, OR

**Temple Grandin**  
Fort Collins, CO

**Brandon Berry**  
Hickory, NC

# New Paper Recommends Expanding Resources for Conservation

The genetic diversity of livestock and poultry is dwindling, leaving one-third of the world's protein supply at risk to events such as weather extremes and disease outbreaks.

A new paper from the Council for Agricultural Science and Technology (CAST) addresses the associated risks with reduced access to genetic traits, as well as what should be done to protect remaining breeds. According to the paper, "Up to 25 percent of global livestock breeds are either at risk of being lost, or have already been lost."

Current conservation practices such as cryopreservation and germplasm repositories are already in use to protect the genes of some animal livestock breeds, but the authors of the CAST paper argue more must be done to prepare for unpredictable future events. They include five recommendations that build on current conservation practices:

1) Commit resources (capital, personnel, facility, information technology) necessary to characterize the genetic diversity of existing livestock and poultry populations in the United States, including both phenotypic and genotypic data, and enhance a cloud based platform to house the data that is publicly accessible and interfaces with the USDA-National Animal Germplasm Program, Animal-Genetic Resources Information Network, and the Livestock Conservancy Program Priority listings.

2) Engage private sector philanthropic awareness and expand funding opportunities across the federal government for research to develop the most effective cryopreservation strategies for domesticated livestock and poultry species.

3) Support the conservation of *in situ* [live animal] populations, particularly for those species such as poultry in which cryopreservation methods are suboptimal, through funding opportunities related to maintaining important genetic stocks for research, small farms, urban development and/or sustainable agricultural practices.

4) Evaluate cryopreserved germplasm,

## CAST Issue Paper

Number 65  
September 2019

### Protecting Food Animal Gene Pools for Future Generations

A paper in the series on  
*The Need for Agricultural Innovation to  
Sustainably Feed the World by 2050*



Using different preservation techniques, breeds such as the Malfoof hog, Buckeye chicken, San Clementine goat, Gull Coast sheep, and Narragansett turkey can be preserved to ensure genetic diversity in livestock and poultry around the world. (Photo collage by Megan Wickham. Photos courtesy of the USDA, Wisconsin Commons, and Curtis Youngs.)

#### ABSTRACT

The world's population is expected to reach more than 9 billion by 2050, creating a grand societal challenge: ramping up agricultural productivity to feed the globe. Livestock and poultry products are keys to the world supply of protein, but genetic diversity of livestock is falling. The number of breeds has declined as farming practices have focused on a small number of high-producing breeds to meet low-cost market demands. In fact, up to 25% of global livestock breeds are either at risk of being lost, or have already been lost. In the face of this mounting depletion in genetic diversity among livestock species, there is an urgent need to develop and maintain an intensive program of sampling and evaluation of the existing gene pools. Genetic diversity can be preserved through living populations or cryopreserved for future use. Living populations can adapt to changes in the natural or production environment, provide value in research, and contribute to specialty

This material is based upon work supported by the U.S. Department of Agriculture's (USDA) Agricultural Research Service (ARS) and Animal and Plant Health Inspection Service (APHIS) Agreement No. 74-2026-0-0001. Any opinions, findings, conclusions, or recommendations expressed in this publication are those of the author(s) and do not necessarily reflect the views of USDA-ARS, USDA-APHIS, any other USDA agency, or the USDA.

whenever possible, for the potential to generate offspring (not just fertility) and use data to inform the minimum collection score to provide the best protection of genetic resources for future use.

5) Expand investment in permanent staffing and programmatic support of the NAGP to increase the procurement, management and utilization of genetic resources.

"By losing breeds we make finding potential solutions to future production demands much more difficult, and recent history indicates that predicting future demand is problematic," the authors write. "Conserving breeds saves these options and keeping them in the agricultural landscape is a reminder that these options exist."

*Protecting Food Animal Gene Pools for Future Generations – A paper in the series on The Need for Agricultural Innovation to Sustainably Feed the World by 2050*, is available for free download on CAST's website: [www.cast-science.org/publications](http://www.cast-science.org/publications). ❖

Adapted from a news release written by Dr. Julie Long, Animal Biosciences & Biotechnology Laboratory, USDA - ARS.

# Bringing the Past into the Future

By Taryn Elliott

Right around the time the American Minor Breeds Conservancy (now The Livestock Conservancy) was forming and beginning its mission to conserve heritage livestock breeds, Elva Ruth Garfield began turning her family's sweeping 136-year-old farm in Northern Illinois into a museum. Located about 40 miles west of Chicago, today the staff and volunteers at Garfield Farm educate visitors on history, agriculture, and the environment.

The farmstead was bought by Timothy Garfield, Elva's grandfather, in 1841, but traces to an 1835 federal land claim. Five years after his purchase, Garfield built a brick inn which began the farm's long history of community engagement. Travelers from all around would gather at the inn for annual parties and long talks with fellow travelers.

The farm and its facilities were still in operation when the idea for a living museum first started being implemented. Jerome M. Johnson, who has worked at Garfield Farm Museum as the Executive Director for over 37 years, explains, "The first goal was to preserve this intact historical site. Then we could begin sharing history and farming." For Garfield Farm,



**A group of local schoolchildren learn about the history of Garfield Farm. Photo by Don Schrider.**

the purpose was to show people how the past was impacted by change in a way that acknowledges the changes that continue to occur.

Garfield Farm Museum has acquired more than double the original 163 acres of farmland since launching this historical endeavor. They currently have 366 acres, the last of which was acquired with the purchase of a neighboring farmstead in 2002. The farm includes original houses, dairy farms, horse barn, carriage shed, and

granary dating from the mid-19th century.

They are currently working to restore a 1906 dairy barn, a task important to the values held at Garfield Farm. "We try to preserve as much as possible and restore when needed," Johnson explains. "We never want to get rid of these buildings because that would be a loss of architectural environment. We currently have three buildings from the 1840s that are anywhere from 70 to 99 percent restored."

In 42 years of operation, Garfield Farm has become an important partner for The Livestock Conservancy. Their dedication to raising heritage turkeys and chickens has made a crucial impact on protecting key endangered breeds. "The obvious thing to do was to try and have animals used in the 1800s on the farm," explains Johnson. Of course, farm animals that were once very common have become increasingly rare.

"We got our first birds, Dominiques and Dorkings, in 1982," he says. Today, Dominique and Dorking chickens are both on The Livestock Conservancy's *Conservation Priority List* under the Watch category. Fewer than 5,000 breeding birds for each breed exist in the United States, and the estimated global population for each breed is less than 10,000. Dominiques are also a breed unique to North America, which makes them especially important

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**Garfield Farm's historic 1846 brick inn. Photo by Jeannette Beranger.**

# Garfield Farm

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for conservation.

“Later we got Merino sheep which were quite wrinkled, and then the Milking Devon oxen. Finally, we acquired some old Berkshire hogs,” Johnson shares.

Matching animals with the 19th century time period is not easy. Early descriptions of some breeds indicate different color varieties than are seen today. Garfield’s goal is just to come close to what they had. “Instead of coming up with the phenotypic expression of a breed, we try to preserve the genotype that’s already out there.”

Currently, Garfield Farm Museum breeds Heritage Java chickens and Narragansett turkeys. Java chickens are considered the second-oldest breed of chickens developed in America and are currently on The Livestock Conservancy’s Watch List. When Garfield selected the Black Java chickens in 1995, only 500 existed in the world. Johnson and his staff worked closely with the Museum of Science and Industry in Chicago to grow this population.

“The museum needed eggs to hatch for an exhibit,” he explains. “Now, the museum hatches the eggs and Garfield Farm finds people who would be willing to raise the chicks.” Johnson proudly shares that more than 3,000 of these extremely rare chickens have been produced and sold around the country as a result of this partnership.



**ALISON MARTIN**  
Executive director  
The Livestock Conservancy

## Dr. Martin Speaks at Economist Event

The Livestock Conservancy continues to make strides building both domestic and international relationships and carrying our mission to broader audiences. The Conservancy’s Executive Director Dr. Alison Martin was recently invited to present at *The Economist*’s “Feeding the Future” Summit to discuss the importance of biodiversity in Agriculture. Many global leaders in agriculture and food production were in attendance and learned about our mission.

Other breeds currently on-site include Merino sheep, Pilgrim geese, and a pair of Milking Devon oxen. These animals are types that would have been found on a northern Illinois farm in the 1840s, so they are perfect for Garfield’s mission, telling the story of American agriculture at the living history museum. Milking Devon cattle are on the Conservancy’s Critical List with a stable, but small population of 500 animals across the country. These cattle are unique to North America and

one of our most endangered breeds.

“People are already sold on preserving furniture, buildings, and other types of artifacts. Preserving genes is not that different,” Johnson says. “We want people to leave thinking about how we are essentially allowing entire banks of genes just to go extinct without the work of heritage breeders.” One opportunity for this type of education comes at Garfield’s annual Rare Breeds Show, held each spring. The show is one of the oldest and largest exhibitions of rare breed farm animals in the country. The 2020 show will be held on May 19 from 11:00 am to 4:00 pm.

Garfield Farm’s dedication to conserving rare breeds has made them a valuable asset to saving heritage animals. Investing in rare breeds is sometimes a complicated and expensive task that, while absolutely necessary, can be difficult. Their emphasis on history and development of the museum has created a means of economic sustainability for raising heritage breeds. The team at Garfield Farm Museum is dedicated to education, historic preservation, and heritage breed conservation. The Conservancy salutes them as master breeders. ❖

*To learn more about Garfield Farm Museum and how you can participate in the annual Rare Breeds Show, visit [www.garfieldfarm.org](http://www.garfieldfarm.org), email [info@garfieldfarm.org](mailto:info@garfieldfarm.org), or call 630-584-8485.*



**Pilgrim geese (Threatened) on display at Garfield Farm. Photo by Ryan Walker.**

# Devons As Far As the Eye Could See!

Story and photos by Richard Larson and Jeannette Beranger

It was a sight not seen in decades. The Second Annual American Milking Devon Mid-Atlantic Regional Show & Card Grading brought together the largest gathering of American Milking Devon cattle in 80 years all under one roof. The event took place in September at The State Fair of Virginia in Doswell. It was a wonderful opportunity for owners to meet other breeders from around the country. Breeders from Maine, Vermont, New York, Pennsylvania and Virginia exhibited in the regional show. Five American Milking Devon Cattle Association Directors joined the festivities.

*"I was glad to be able to attend this year to view it for myself. We had a great time and I was truly amazed to finally see this beautiful breed exhibited on a big stage. The potential looking ahead is bountiful!"* Jeremy Michaud, Exhibitor, VT

It was also an important learning opportunity to be able to observe the judges inspecting a wide range of Milking Devons from spring calves to senior cows. Last year there were only 31 cattle on exhibit and the American Milking Devon



**Kim Winslow of Marston Homestead in Falmouth, ME.**

Cattle Association was very proud to report that this year there were nearly 50 animals at the event. That was pretty amazing considering that there were only about 50 animals of all the other dairy breeds combined! The AMDCA brought in two specialized judges to oversee the contest including long-time Devon veteran Bruce Farr of Farrview South Farm in New Hampshire and the young and talented Darin Durham from Colonial Williamsburg.

*"It was exciting to see so many Devon and Devon breeders together!"* Bonnie Hall, Registrar, CT

The first day was dedicated to the judging of the different classes of cattle and

the second day was spent card grading for those owners interested in getting a finer examination of their cattle compared to the breed standard.

Eleven heifer calves; eight yearling heifers; ten young cows; twelve senior cows and six bull calves competed for top honors in their respective classes. The show also included a mix of group classes that were restricted to animals that were both bred by and owned by the exhibitor. These B&O (bred and owned) classes included: Three Heifers; Produce of Dam; Dam & Daughter; Get-of-Sire; and Breeders Herd. The show capped off with the Premier Junior Exhibitor award to Dale Freier, NY and the Premier Breeder award to Richard Larson, VA both based on overall point accumulation of B&O entries.

Saturday ended with a final "beautiful cow" contest where participants were invited to dress up themselves and for many, their cattle as well, in themed costumes. One of the more delightful entries was little Abigail Freier charming everyone in her country dress while visibly doting on her beloved calf. While many factors contributed to the success of the gathering, chief among them is the fact that eight of the exhibitors were youth, with their characteristic enthusiasm, bodes well for the future of the breed.

*"I was very impressed with the young exhibitors. I am confident that we have a new generation coming forward who will be good stewards of the American Milking*

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**Bruce Farr of Farrview South Farm in New Hampshire is a longtime breeder and was one of the Devon show judges.**

# Membership Gift Special!

For a limited time, gifts of \$95 or more to the Conservancy will include:

- One Year Conservancy Membership valued at \$45
- Unique, hand-crafted felted soap valued at \$20
- Donation of \$30 – or more – to save rare and endangered breeds

Visit <http://bit.ly/SupportTLC> or mail in your donation and **note “Soap Special” with your gift.**

Amy McKamey and her husband, Alan, are proud owners of Heritage Meadows Farm in Clayton, Indiana. Amy makes lard soap from her registered Large Black Hogs and with essential oils, herbs, flowers, and luffa grown directly on the farm that give it a lovely scent. The low-sudsing soap is long lasting and moisturizing.

Each 4.2 oz. bar contains no artificial scents or dyes. The unique covers are original works of art made from hand-dyed wool, felted and hand-stitched. Patterns or templates are never used. The built-in washcloth will gently exfoliate your skin while the wool shrinks around the bar until a little scrubby is left, perfect for cleaning!

Each animal design is based on a breed currently listed on the *Conservation Priority List*. The specific breed you receive will be a surprise. Make your gift today! Quantities are limited. ❖



## Milking Devons

*Continued from previous page*

*Devon Breed.* – Bruce Farr, Director, NH

Sunday was devoted to individual evaluation of the cattle against the breed standards, using a card-grading system. Each animal was awarded a card: Blue - Excellent; Red - Good; Yellow - Fair; or White - Unacceptable. Both the breeder and the public listened to the judge's detailed comments about each animal. Two-thirds of the Devon evaluated received a blue card.

The weekend had brought record heat to the show but that did not hamper the spirit of the participants. All were excited

to the very end to be at the fair and most importantly to join in on sharing their mutual love of owning Devons.

In addition to the many one-on-one conversations that were ongoing up and down the barn between breeders and exhibitors the entire weekend, on

**Kim & Mark Winslow with Marston Homestead Kane, Champion Bull**

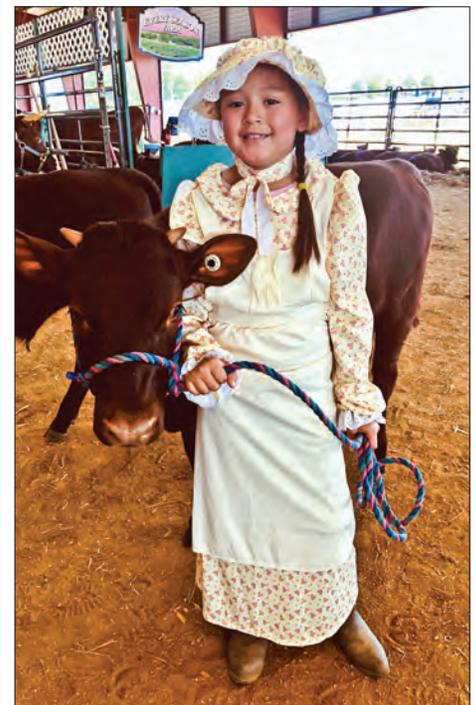


Saturday the Board took the opportunity to meet with exhibitors and other breeders present at the gathering.

*“For our family, it has been primarily the ability to network and meet other breeders that is driving us to the show as well as the fact that it is a fun family activity. Sharing the experiences of the participants is probably the best way to encourage others to participate.”* – Dale Freier, Exhibitor, NY. ❖

*To learn more about card grading Milking Devons visit <https://livestock-conservancy.org/index.php/resources/internal/card-grading-protocols> for a great free for viewing instructional video.*

*Please plan to join us for the 2020 Regional Show at the Virginia State Fair, September 25-27, 2020. Better yet, start planning now to bring your American Milking Devons! For more information about the 2020 regional show, contact Richard Larson at 540-829-5683 or [oldgjerpenfarm@yahoo.com](mailto:oldgjerpenfarm@yahoo.com). ❖*



**Abigail Freier wore a country dress while exhibiting in the “beautiful cow” contest.**

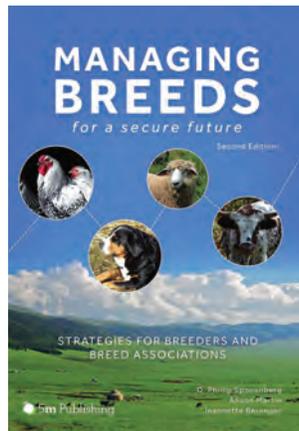
# THE LIVESTOCK CONSERVANCY'S 2019 HOLIDAY GIFT GUIDE

Trying to decide what to get your family and friends for the holidays? The Conservancy offers dozens of popular books about heritage breeds and farming on our website, in addition to gift memberships and the opportunity to make a tribute donation in someone's name. And don't forget to check out Livestock Conservancy, Endangered Equine Alliance, and Shave 'Em to Save 'Em t-shirts, caps, mugs, and more at in the Café Press section of the store. *Merchandise sales, memberships, and contributions support our conservation work.*

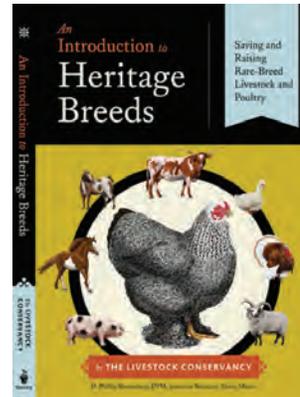
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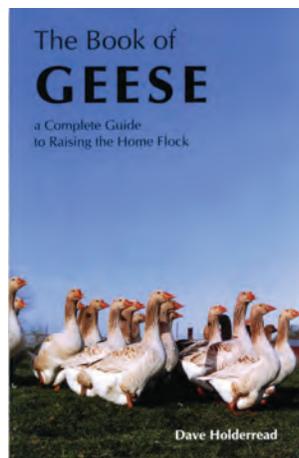
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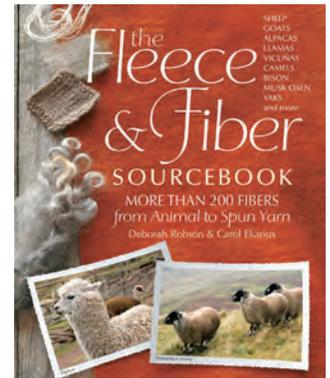
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# BREED SPOTLIGHT

## Galiceño Horse

On his second voyage to the “New World” Christopher Columbus brought horses and established breeding herds on Hispaniola. Hernan Cortes followed in 1500 and also brought horses from the Galician province of Northern Spain to Cuba and established a breeding herd. In 1519 when he invaded the mainland of Mexico, he brought along some of these horses, which significantly impressed the natives and resulted in them believing the Spaniards were “gods.” After the defeat of the Aztecs, horses were brought to the mainland for the Spaniards who were colonizing southern Mexico. There, these horses were free to breed, and 500 years of natural selection, rather than artificial selection by humans, have resulted in the horses we now call “Galiceños.” DNA evidence from the Texas A&M Genetics Lab shows that Galiceños are very closely related to the Iberian Garrano. Galiceños are therefore the earliest “Spanish Colonial Horse” in the Americas and are very pure showing very little if any genetic exchange with other breeds because of their isolation.

Many of these horses were brought into the United States from 1958 through the mid 1960s by Harvey Mecom of Liberty, Texas. Glenn Bracken of Tyler, Texas, and Charles Dolan of Eagle Pass, Texas began to import these horses into Texas and in 1959, established the Galiceño Horse Breeders Association. More on this history can be found at <http://Galiceno.org>.

Many hundreds of Galiceños were brought into the USA in those early years and were dispersed throughout the country. Galiceños were successfully kept and bred in southern humid climates, southern dry climates, and northern climates in Washington, Idaho, and British Columbia. Many were crossed with other breeds to “improve” those breeds. They are part of the ancestry of the famous King’s Ranch cutting horses, as well as the early breeding of the Pony of the Americas. Currently, the numbers of Galiceños have declined to critically low numbers – less than 200 – with most not in breeding situations. Fortunately, the DNA analysis by Texas A&M



Heidi Reinhardt on Diosa de Oro (Dee Dee). Photo courtesy of Galiceños of Suwannee.

are known from January through September. Gestation is typically 11 months, although

Genetics Lab shows that existing breeding stock have a high level of heterozygosity. Recent efforts by members of The Livestock Conservancy to save this breed have resulted in establishing new breeders around the country.

Galiceños grow to be 12 to 13.2 hands in height and can be found in many colors including black, bay, chestnut, cremello, palomino, lineback duns, buckskins, and roans. Pinto and Appaloosa patterns are not found in this breed. In profile, the head is straight or convex. The nostrils are crescent shaped and very elastic allowing a large opening for maximum air flow during strenuous activity. The ears are small and hooked inward at the tip. The chest is narrow and deep. Chestnuts on the legs are small or absent. The back is short. The neck, shoulder, back, hip, and depth of chest are equal length. The hip is rounded and shows no crease along the vertebrae.

Although small in size, the larger individuals are fully capable of carrying an adult human very efficiently. Their normal gaits are smooth and easy on the rider. Some Galiceños exhibit a smooth “running walk.” They are intelligent and exceptionally gentle horses that have a desire to please.

These horses have a very strong herding dynamic. Stallions can be kept together with very little aggression between individuals. Mares’ estrus cycles continue through most of the year except perhaps October through January as births

occasionally may go for 12 months. They are “easy keepers” with hay or pasture and may need some grain supplement in the winter of minimum 10% protein, 6% fat quality feed.

Historically, Galiceños were used for ranch work and still are in parts of Texas. Their endurance and stamina enable them to be excellent trail horses for children and adults. Their agility makes them perfect for competitions and they excel in barrel racing. Their intelligence makes them easy to train for obstacle challenges. Galiceños also are perfect for driving. They carry themselves well and are excellent horses in the dressage arena. The current market has been limited due to their size because of a common belief that adults need larger horses. However, older riders are discovering that it is easier to mount a smaller horse fully capable of carrying an adult. Excellent possibilities for the breed are in the “Pony” Hunter/Jumper show circuits. Additional opportunities are being developed in hippotherapy where it is so important that the horse responds to its rider, moving under the rider such that the rider is kept centered. Galiceños do this naturally and, in general, are very gentle with children. ❖

For more information, visit the breed page at [LivestockConservancy.org](http://LivestockConservancy.org) or contact the Galiceno Horse Breeders Association, PO Box 411, Thackerville, OK 73459, [Galicenos@aol.com](mailto:Galicenos@aol.com), [www.galicenos.com](http://www.galicenos.com).

# White Plymouth Rock Genealogy

Researchers at Uppsala University, The Livestock Conservancy, and Virginia Tech have used genomics to study breed formation in chickens and the roots of modern meat chickens (broilers). The mid-19th century was an era of excitement among poultry breeders. Newly imported chickens from Asia were crossed with American landrace chickens and specialty breeds from Europe to establish new breeds and varieties that were standardized by the American Poultry Association beginning in 1873. With contributions by multiple breeders using different strategies, histories of these American breeds are sometimes unclear or inconsistent. This study examined the historical and genetic origins of the White Plymouth Rock chicken, an important contributor to today's broilers.

Two well-known lines of chickens developed at Virginia Tech represented the White Plymouth Rock. The HWS and LWS lines have been selected since 1957 for high and low body weights, respectively, and are considered representative of the White Plymouth Rock breed as of the mid-20th century in the USA. The research team sequenced DNA from HWS, LWS, and the 8 breeds generally considered to have been used to develop the White Plymouth Rock. They then ascertained the percentage of genetic contribution made



**The White Plymouth Rock chicken is an important contributor to today's broilers.**

by each of the founding breeds. Furthermore, by measuring each breed's contribution to individual chromosomes, they were able to determine contribution to specific traits on those chromosomes. Contributions to the male and female chromosomes shed further light on the breed history.

The results confirmed that the Dominique, a very old American breed, was the major contributor to the Plymouth Rock. Dominique, Black Java, and Cochin breeds contributed to the maternal ancestors, while contributions on the male side included Black Java, Cochin, Langshan, Light Brahma, and Black Minorca. Per-

haps surprisingly, the proportional contribution of each of the founders is consistent with early breed history and records, despite selection in the 19th century for white feathers, clean legs, single comb, and yellow skin and selection in the early 20th century for increased body size and egg production.

Differences in the overall ancestral contributions to the HWS and LWS lines were minor, despite more than 60 years of selection for 8-week body weight. Contributions to individual chromosomes were more apparent, and subsequent analyses may provide more insights into the relationship between ancestry in specific chromosome regions and long-term selection for body weight differences. Such analyses may have

implications for genetic contributions to today's broilers.

The livestock and poultry breeds of today are the result of foundation, isolation (genetic drift), and selection, both natural and intentional. Genomic analysis has proven to be a good tool for understanding genetic contributions to breed development. Through additional study of founder contribution to chromosomes and genes, such analyses may also reveal more about the importance of drift and selection in closed populations. Such work also highlights the importance of conserving pure breeds and selected lines of chickens. ❖



**New findings confirm that the Dominique, a very old American breed, was the major contributor to the Plymouth Rock. All photos on this page by Jeannette Beranger.**



**Black Javas on both the maternal and paternal sides contributed to the White Plymouth Rock.**

# Breed Notes

By D.P. Sponenberg

## Jericho Goats Rescued in Alabama

At the annual Spanish Goat Gathering in Murfreesboro, Tennessee, Shan and Courtney Norman relayed the story of rescuing the Jericho line of Spanish goats from Alabama. These goats are from a local herd started in the 1970s when the family matriarch decided to take the local family goats and begin to improve them by selection from within the herd. The goats had originally been brought to the farm by one of the farm laborers who worked for the family for several years. From that time, and up to the 1970s, they had basically run free, paying little heed to fences and occasionally stopping traffic after jumping fences to head to higher ground on the local mountains.

The goats were brought under better control, traffic was unsnarled, and they were selected for size and meat goat conformation. After decades, the results are a distinct line of local Spanish goats from the Southeast. They are well adapted to this humid environment, with great mothering ability, parasite resistance, and strong functional conformation.

As age decreased the ability of the original owner to care for the goats, a good portion of the herd was passed along to the Normans. They have been careful to keep selecting for functionality, keeping the line pure within that original group.

The goats are smooth and well conformed, and have all the hallmarks of a herd long-closed to outside influences.



**Shan and Courtney Norman rescued the Jericho line of Spanish goats in Alabama. Photo by Shan Norman.**



**A recent study by the University of Córdoba has determined the genetic uniqueness of Criollo cattle throughout the Americas. Photo by Jeanette Beranger.**

They are generally all tan, or black with tan markings. Color varies minimally. The horns, heads, and ears are all typically Spanish. This line adds significantly to the few Southeast lines of Spanish goats, and gives interested breeders a real option for using this breed in productive meat-producing systems.

## Criollo DNA Study

Criollo cattle are long-term residents of the Americas that descend from the early imports of Iberian cattle 500 years ago. During those 500 years they have become exquisitely adapted to a host of difficult environments, preserving their incredible longevity and fertility all the while. They have the disadvantage of being on the small side for cattle, so most breeders and animal scientists tend to overlook the real advantages they offer in terms of total productivity per unit of area. This aspect of productivity and adaptation is one reason for their conservation.

A second reason is related to their genetic uniqueness, but this has long been more of an assumption than a proven fact.

A recent study of 150 breeds by the University of Córdoba in Spain has been able to provide firm data to validate the genetic uniqueness of Criollo cattle throughout the Americas. The study teased out the genetic relationships of breeds from Asia, Africa, Iberia, Northern Europe, Britain, and the Americas. It relied on three threads: 1) male-specific Y chromosome, 2) female-specific mitochondria,

and 3) more general genetic information revealed by microsatellites.

The Livestock Conservancy was able to provide samples from Texas Longhorns, Pineywoods, Florida Cracker, and the Criollo from Chihuahua. The results were

stunning, because multiple breeds of this group of breeds (from North, Central, and South America) show a very strong genetic signal that is otherwise quite weak in other parts of the world. This even includes the Iberian breeds, from which they descended those 500 years ago. This further validates the uniqueness of this genetic treasure and highlights the need for effective conservation.

Texas Longhorns, Florida Cracker, and Criollos from Chihuahua had the strongest signal from this “Criollo-specific” genetic origin. In the case of all three of these the story gets a bit more complicated. For each of these three the present breed, or the portion sampled in the case of the Florida Cracker, descended from a relatively narrow origin in only a single source. In the case of the Pineywoods, the sampling was more broadly accomplished and included most of the foundation strains. Regardless of the reasons, the finding that the United States has three breeds with this strong Criollo genetic signal is a good call to action for conservation.

## Pineywoods Strain Discovery

Effective breed conservation, especially for local breeds, depends on an ongoing “discovery” phase of what is out there that remains of the breed. One welcome development was initiated by a phone call in late March 2019 from Justin Pitts in Mississippi. Justin has long had an interest in local southern livestock, including cattle, hogs, sheep, goats, chickens, geese, and dogs. He called, excited to have found a herd of polled Pineywoods cattle in his home county. Polled cattle are rare in the breed, and have recently been lost out of some strains by selection in the last

few years. The breed needs at least a few of these polled cattle around as a hedge against future selection demands. Many beef producers prefer polled cattle, and it is nice to have that variant around to meet that need. Experienced eyes and a functional and engaged network of interested folks can bring a great deal to the discovery phase of breed conservation. Justin certainly brought his long experience to bear in this present situation.

Over the next few days a few more pieces of the puzzle began to fit together. These turned out to be Clark line cattle. That rang a distant bell, so I reviewed notes from decades ago when the organization of Pineywoods Cattle conservation first started to organize. Clark was one of the strains that had been listed. They were described as white with colored heads and legs, which is an extreme variation of expression of one of the two types of linebacked cattle. Those decades ago they unfortunately had to be designated as “extinct,” and this conclusion actually shows up on the diagram on page 48 of *Managing Breeds for a Secure Future*. It turns out that was in error, but a very welcome error. The lesson here is “Keep notes!” because they can help immensely in the future.

The Clark herd is an old line of local cattle. They do include several of that unique “colored head and legs” pattern, and most are indeed polled. The herd is owned by a local man who got them from his father, who in turn got the herd from his father. The herd goes way back, and looks the part.

The next part of the puzzle was to



**A rare polled Pineywoods. Photo courtesy of Justin Pitts.**

# What is Ravelry?

By Deborah Neimann

Although the online community Ravelry is far from being a household word like Facebook is, it is the place where fiber artists hang out online. That means it is the place to be if you are selling wool, which is why the The Livestock Conservancy has a Shave ‘Em to Save ‘Em (SE2SE) group on Ravelry, in addition to one on Facebook.

Ravelry, launched in 2007, currently has about eight million members. Its SE2SE group is rapidly approaching 1,000 members. Unlike Facebook, which has a lot of lurkers from around the world who are not actually participating in the program, the Ravelry group appears to be made up primarily of official fiber artists and fiber providers.

Still operating on an old-fashioned forum platform, popular threads include “Fiber Chat” and “Finished Projects”, as well as individual threads where fiber providers can post fiber for sale, including raw fiber, roving, and yarn. There are also breed-specific threads where members can discuss the challenges and joys of working with the fiber of individual breeds. Members also create threads about upcoming fiber festivals in their area that they may be attending as either an artist or a fiber provider, and they are hoping to connect with other members or buy fiber in person.

Although Ravelry members do have a profile, they don’t have a page like they do on Facebook or other social media sites where they can post lots of photos regularly. That means that if you have products to sell, you have to post in threads in individual groups, such as the Shave ‘Em to Save ‘Em group. Although you can’t have a page on Ravelry, you could start your own group. For example, if you wanted to have a group devoted to using one particular breed of wool or simply connecting shepherds with spinners or knitters, you could do that. If you create a group, you can create static pages inside the group.

If you want to join in the fun and see lots of beautiful photos of projects being made with wool from sheep on our *Conservation Priority List*, head on over to [www.ravelry.com/groups/shave-em-to-save-em](http://www.ravelry.com/groups/shave-em-to-save-em) and check it out! ❖



make sure they did not disappear again. A long-term supporter of The Livestock Conservancy has had a consistent interest in rescue situations, and it was possible to put together the financial and genetic resource to assure the future of the strain.

It is always gratifying to be wrong on an “extinction declaration.” Over the decades of this work The Livestock Conservancy has periodically declared something or other “extinct,” only to be pleased when someone in a huff calls to correct us on that detail!

## Suffolk Horse Results

Preliminary work has been done on analyzing the breeding and population dynamics of the Suffolk horse in the

United States. This is an important breed of draft horse that has long seen use in the field rather than in the show ring, and it retains the no-nonsense conformation and attitude expected of a horse designed to work and work well.

The breeding of Suffolks in the U.S. can be divided into a few different eras. Before World War II there were many horses, but after WWII numbers began to decline. If anything, this decline was more severe in the United Kingdom than in the U.S. After WWII, breeders in the U.S. still imported horses from the U.K., but none went the other direction.

The early analysis shows a fairly steady decline in the level of American breeding in the Suffolks in the U.S., and a consistent increase in the level of post-WWI breeding in the U.K.. This is some cause for concern due to the numbers and breed dynamics in both countries. The “American pre-WWII” bloodlines are important for the genetic diversity of the breed. ❖

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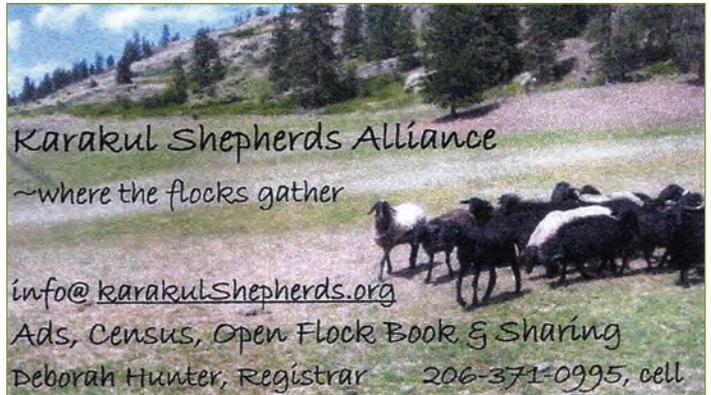
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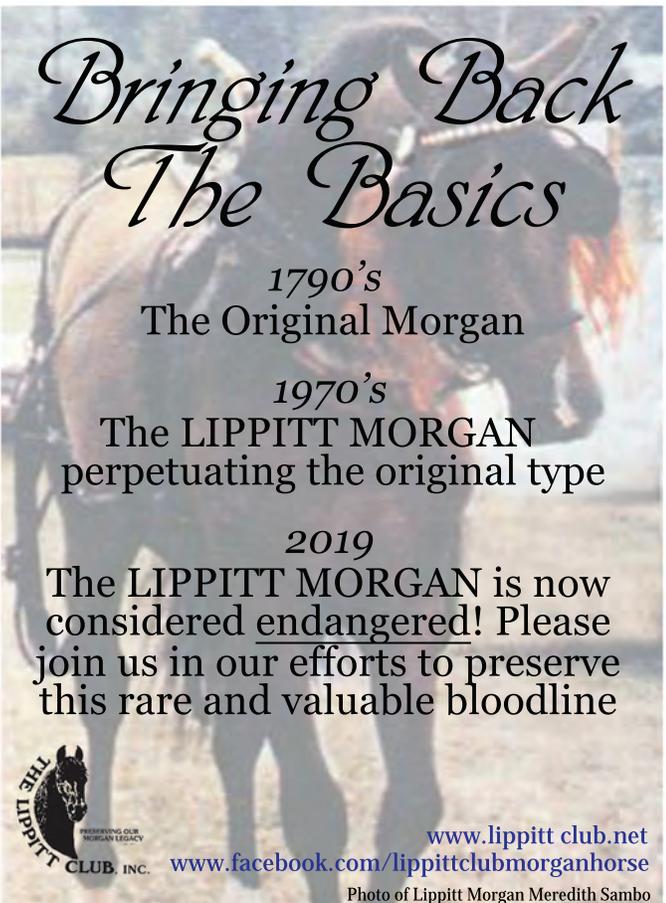


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## CALENDAR

★★ denotes Livestock Conservancy event  
★ denotes Conservancy participation  
*See the Conservancy website for a more extensive list of events. The Livestock Conservancy encourages event organizers to submit events related to conservation, farming, sustainability, rare breeds, and more to the Conservancy's Calendar. Send your submission to [rwalker@livestock-conservancy.org](mailto:rwalker@livestock-conservancy.org) or mail to PO Box 477, Pittsboro, NC 27312.*

### December

**December 6-7 – Missouri Livestock Symposium** in Kirksville, MO. For more information, visit [www.missourilivestock.com](http://www.missourilivestock.com).

★★ **December 10 – The Livestock Conservancy's 2019 Annual Members Meeting** will be held online and by phone. See page 2 of this newsletter for more details.

**December 13-14 – The Buckeye Shepherd's Symposium** will be held in Wooster, OH. For more information, visit [www.ohiosheep.org](http://www.ohiosheep.org).

**December 13 – National Day of the Horse** takes place across the country. The goal is to encourage the people of the United States to be mindful of the contribution of horses to the economy, history, and character of the United States. Visit [www.nationaldayofthehorse.com](http://www.nationaldayofthehorse.com) for more information.



## THE LIVESTOCK CONSERVANCY

*Thank you for your generosity and support over the past year. Wishing you a warm and joyful holiday season.*

*– From all of us at The Livestock Conservancy*

★★ **December 31 – DEADLINE to update information** and submit ads for the Livestock Conservancy's 2020 Breeders and Products Directory. If you need to update your information, log in at [Livestock-Conservancy.org](http://Livestock-Conservancy.org). Email the Conservancy or call 919-542-5704 for more information about advertising in the directory.

### January

**January 9-10 – The Minnesota Organic Conference** will be held in St. Cloud, MN. 30-plus breakout sessions on soils, crops, livestock, certification, marketing, and more. Visit [www.mda.state.mn.us/moc](http://www.mda.state.mn.us/moc) for more information.

**January 22-25 – The American Sheep Industry Annual Convention** will be held in Scottsdale, AZ. For more information, visit [www.sheepusa.org](http://www.sheepusa.org).

**January 11-26 – The National Western Stock Show** will be held in Denver, CO. This event features more than 15,000 head of horses, cattle, sheep, swine, goats, lla-

mas, alpacas, bison, yak, poultry, and rabbits each year. Visit [www.nationalwestern.com](http://www.nationalwestern.com) for more information.

**January 17 - February 8 – The 123rd Annual Fort Worth Stock Show & Rodeo** will be held in Fort Worth, TX. The event features world-class livestock shows, kid-friendly exhibits, carnival/midway fun, live music, unique daily shopping and nightly rodeos. Over one million visitors and 22,000 head of livestock participate each year. Visit [www.fwssr.com](http://www.fwssr.com) for more information.

**January 22-25 – The Southern SAWG Conference** "Practical Tools and Solutions for Sustaining Family Farms" will be held in Chattanooga, TN. Visit [www.ssawg.org](http://www.ssawg.org) for more information.

### February

**February 8 – Lambing Q&A** will be in Bellingham, WA. For information, email [lydiasflock@gmail.com](mailto:lydiasflock@gmail.com) or call 320-733-4127.